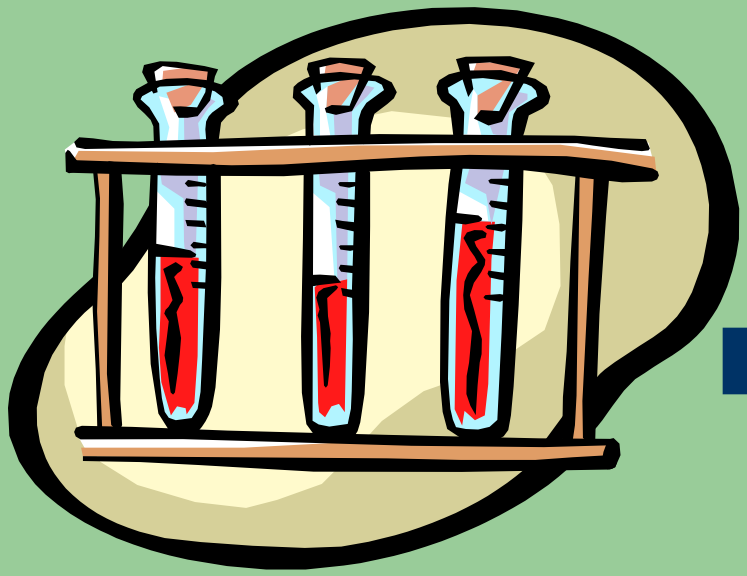
ANEMIA MANAGEMENT DURING HEMODIALYSIS



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Renal PCR
19 May 2000

Patient: LH

- 47 YO African American Female
- Hemodialysis patient
- Diagnosis: ESRD, Anemia secondary to ESRD

Anemia Management

- TYPE OF ANEMIA: Normochromic, normocytic, hypoproliferative
- Body cannot produce enough RBC
- OCCURANCE: All HD pts

Anemia Management

- CAUSES:

  (1) Lack of erythropoietin production

  (2) Decreased life span of RBC (~60 days)

  (3) HD pts lose 2 L of blood/year

Anemia Management

- TREATMENT:

  (1) Epogen therapy (all HD pts)

  (2) Fe supplementation (some HD pts)

  (3) Dietary intake

Epogen

- Synthetic erythropoietin
- Given after dialysis
- Goal to keep HCT within 33-36%
- Two rules of epogen:

  (1) Never hold epogen doses – cut dose in half if HCT gets too high

  (2) Never double an epogen dose – only 25% increase at a time

Iron Supplementation

- TYPES:

  (1) FeSO4 – oral, least invasive, side effects
  Not for dialysis pts

  (2) Subcutaneous - BEST! Sustained over time

  (3) IV Fe – given as bolus after HD

Iron Supplementation

- Start 2-3 wks prior to EPO so body has time to convert Fe to usable form
- Allergic rxn – always test dose of 25 mg (itching, redness, SOB, muscle pain)
- May need to premedicate with prednisone or benadryl

Dietary Intake

- Create good environment for RBC growth:
  - adequate calories
  - adequate protein
  - adequate folic acid
- Food sources of iron
  - Heme – Ferrous, most absorbable!
  - Non-heme – Ferric, needs help!

LH – Past Medical/Surgical History

- HTN (17 yrs)
- High Cholesterol (’88)
- CAD (8/99)
- Tubligation (’80)
- Dx ESRD/Begin HD (5/95)
- 26 Thrombectomies (8/95-5/00)
- 2 revisions (’98)
- Stent placement in bladder (8/98)
- Exploratory surgery (8/99)
- Stent in heart (9/99)
- Graft placement (4/00)

LH - Past Anemia History

- 1 YEAR AGO:

  -“Sticky platelets”

  -Purposely kept HCT low to decrease PTT
- THIS YEAR:

  -Began controlling PTT with meds
- NOW:

  -HCT WNL – success story!!

Anthropometrics

- Ht: 72”
- Frame: Large (wrist circumference)
- Dry Wt: 257.4 lbs (117 kg)
- UBW: 257.4 lbs (117 kg)
- DBW: 160-184 lbs (RO5&6 + 10%)
- %DBW: 140%
- Avg IDWGs: 5.3 kg
- Urine output: Very little (~4 oz)

Important Labs During Anemia

- IRON: measure of iron in serum
- TIBC: Total Iron Binding Capacity

  - Protein that carries Fe in serum to bone marrow (transferrin)
- Fe SATURATION: IRON/TIBC

  - Amount of Fe available in bone marrow to make RBC
- FERRITIN: Amount of Fe stored in bone marrow & lymph

Pertinent Lab Data – 19 Apr 00

- Iron: 71 ug/dl
- TIBC: 315 ug/dl
- Fe Saturation: 22.5%
- Ferritin: 641.6 ng/ml
- HCT: 35.4%
- Alb: 4.0 g/dl
- BUN: 37 mg/dl
- Creatinine: 11.5 mg/dl
- PTT: 24.3 (24.6–34.6)

Medications

- Epogen – Antianemic
  -May need Fe, B12, Folic Acid supp.
  -N/V/D
- Nephrocaps – Renal MVI (B vits, Vit C)
- Aspirin – Platelet Aggregation Inhibitor
  -Food decreases rate of absorption
  -Long term use may contribute to Fe deficiency anemia
  -N/V/gastric bleeding

Nutrition/GI problems

- Appetite: OK – varies
- Nausea: Occasionally – not a problem this yr
- Constipation
- Dry Mouth
- 24 HOUR RECALL

Estimated Nutrient Needs

- Calories: 1690-2090 kcals/day (20-25 kcals/kg DBW)
- Protein: 92-117 g pro/day (1.1-1.4 g/kg DBW)
- Potassium: 2500-2600 mg/day
- Phosphorus: 840-1421 mg/day (10-17 mg/kg DBW)
- Sodium: 1-3 g/day
- Fluids: 1 L + 4 oz/day

Nutrition Diagnostic Statement

- Pt is 140% DBW with increase of 8 kg during past 3 months. To meet ht/wt standards for transplant, pts wt should not exceed 221# (120% DBW). Pt must lose 36# to be considered for transplant. All pt lab values WNL, to include improved baseline Creatinine. Pt HCT WNL, Fe panel WNL; Pt maintains epogen tx without Fe supplementation. Per 24 hr recall, pt consumes adequate kcals, pro & limited fluids, however avg IDWGs > 5 kg.

Recommendations

- 1900 kcals/day
- 100 g pro/day
- 2500 mg K/day
- <1000 mg P/day
- 2 g Na/day
- 1 L + 4 oz fluid/day

Recommendations

- PLANS:
- Counsel pt on 1900 kcal diet
- Discuss ways to mitigate fluid intake

- GOALS:
- Assist pt with safe, healthy wt loss to meet ht/wt standards for transplant
- Bring Avg IDWGs within 3 kg

Outcomes of Care

- POTENTIAL HEALTH OUTCOMES:

  - Reduce # of thrombocies by controlling anemia

  - Improve QOL due to increased appetite, reduced hospital stays

  - Decreased morbidity and mortality from proper nutrition

  - Improved adequacy of dialysis, reduced time on machine with HCT control

Outcomes of Care

- POTENTIAL RESOURCES SAVED:

  -Money

  -Time

  -Resources

  -Hospital stays

QUESTIONS??